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~~IN THE~~ UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Kim A. Reynolds, et al.** Examiner: **S. Nolan**

Application No.: **09/066,513** Group Art Unit: **1772**

Filed: **April 24, 1998** Attorney Docket No.: **P-21,669 USA**

For: **Abrasion Resistant Multi-wall Article and Method of Making Same**

CERTIFICATE OF MAILING

I hereby certify that this correspondence, along with any papers indicated as being enclosed, are being deposited as First Class Mail in an envelope addressed to: **Box AF**, Commissioner for Patents, Washington, D.C. 20231 on May 28, 2002.

Wendy H. Lord
Wendy H. Lord

Box AF
Commissioner for Patents
Washington, D.C. 20231

APPEAL BRIEF

Sir:

This Appeal Brief is submitted pursuant to 37 C.F.R. § 1.192 within the time specified by the filing of the Notice of Appeal which has an extended period set to expire on May 28, 2002.

STATEMENT REGARDING REAL PARTY IN INTEREST

The real party in interest in the present appeal is Markel Corporation.

STATEMENT REGARDING RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences known to the appellants' legal representative which will directly affect or be directly affected by or have a bearing on the

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Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-17 and 25-31 are pending. No claims have been cancelled or allowed, and claims 1-17 and 25-31 which have been rejected finally are on appeal.

STATEMENT REGARDING STATUS OF AMENDMENTS

Applicants have filed no amendments subsequent to final rejection.

SUMMARY OF INVENTION

The claimed invention is directed to a motion-transmitting cable assembly comprising an abrasion-resistant tubular article and a motion-transmitting core moveably disposed within the tubular article. The articles of the present invention comprise at least two walls arranged in a coaxial configuration in which the inner wall comprises a fluorocarbon polymer resin, preferably polytetrafluoroethylene (PTFE), and the outer wall comprises a fluorocarbon polymer resin, PTFE, and an inorganic filler. *See* Specification at p. 5, ll. 16-24. Independent of the particular process employed in the formation of the multi-wall conduit, the inner and outer walls are formed substantially simultaneously to provide an intimate mechanical bond along the interface between adjacent the walls. *Id.* at p. 7, ll. 6-14.

STATEMENT REGARDING ISSUES PRESENTED FOR REVIEW

The single issue presented for review is whether the rejection under 35 U.S.C. § 103 of

claims 1-17 and 25-31 as unpatentable over U.S. Patent No. 4,362,069 to Giatras et al. in view of U.S. Patent No. 5,922,425 to Greuel and U.S. Patent No. 5,789,047 to Sasaki et al. was proper.

GROUPING OF CLAIMS

Claim 1 is the only independent claim and claims 2-17 and 25-31 all depend, either directly or indirectly, from claim 1. Accordingly, all of the pending claims are to be considered as a single group, and the patentability of all of the pending claims stand or fall together.

ARGUMENT

A. The Rejection Under 35 U.S.C. § 103 Is Improper

In a Final Office Action, mailed May 22, 2001 (the "Final Office Action"), claims 1-17 and 25-31 were finally rejected under 35 U.S.C. § 112, second paragraph, and under 35 U.S.C. § 103 as being patentable over U.S. Patent No. 4,362,069 to Giatras et al. (the "Giatras patent") in view of U.S. Patent No. 5,922,425 to Greuel (the "Greuel patent") and U.S. Patent No. 5,789,047 to Sasaki et al. (the "Sasaki patent"). On September 24, 2001, the applicants filed a Response After Final (the "Response") in which they presented arguments in favor of patentability and, pursuant to 37 C.F.R. 1.132, submitted the Declaration of Dr. Charles Marino (the "Marino Declaration") to support these arguments with facts regarding the chemistry of PTFE. Dr. Marino is the Vice President of Technology for Markel Corporation (the real party in interest identified above) with almost 30 years of experience in the field of Chemistry, a Ph.D. in Chemistry from the University of Pennsylvania, and specific experience in the field of PTFE processing with intimate familiarity with the state of the art. *See* Marino Decl. at ¶¶ 1-3.

In the Response, the applicants acknowledged that although the Giatras patent relates to cable assemblies having a liner formed of PTFE, the Examiner had correctly noted that Giatras does not teach the bonding of the liners to outer layers or optional intermediate layers. *See* Response at p. 2. The applicants then argued that the Examiner's reliance on the Greuel patent to overcome the substantial deficiencies in Giatras was misplaced because the Examiner had incorrectly stated that "Greuel teaches PTFE with fluoropolymers in multi-layer articles." *Id.*; *see also* Final Office Action at ¶6. To the contrary, the Greuel patent describes the first layer of a multilayer composition as comprising "semi-crystalline copolymer comprising interpolymerized units derived from tetrafluoroethylene (TFE) and allylic hydrogen-containing olefin monomer (e.g.. propylene) ...." *See* Greuel patent at col. 2, ll. 10-12.

The Marino Declaration buttressed the distinction asserted by the applicants by providing information regarding how PTFE is known in the art and facts regarding certain specific chemical properties of the material described in the Greuel patent as compared with PTFE. More specifically, the Marino Declaration states as follows:

> It is well known to those skilled in the polymer art that "polytetrafluoro-ethylene," which is referred to as PTFE, generally describes a substantially homopolymeric material consisting essentially of the following repeating units:
>
> $$[-CF_2-CF_2-]_n$$
>
> The term PTFE is also sometimes used in the art to describe slightly modified PTFE polymers which consist essentially of PTFE but which also include relatively small amounts (approximately 0.5 % or less by weight) of other fluoromonomers. In all cases , however, PTFE describes a polymer that is not melt processable.

See Marino Declaration at ¶ 6. The Marino Declaration further specifies that whereas the first layer material described in the Greuel patent has a first melt transition temperature of about

154°C and second melt transition temperature of about 300 °C, PTFE has a single melt point more than 100°C above the initial melt point of the first layer material described in the Greuel patent. *Id.* at ¶ 9. Accordingly, Dr. Marino concludes that such material is not PTFE. *Id.* Dr. Marino further notes that the second layer material described in the Greuel patent is characterized as "melt-processed" and, as a result, cannot be PTFE. *Id.* at 11.

In an Advisory Action, mailed October 12, 2001 (the "Advisory Action"), the rejection under 35 U.S.C. § 112, second paragraph, was withdrawn. The rejection under 35 U.S.C. § 103, however, was maintained. The Examiner's basis for maintaining the § 103 rejection rests exclusively on an two-pronged attack upon the Marino Declaration: (1) that the comments of Dr. Marino are the opinions of an interested party; and (2) the comments "seem to argue in support of a limitation that is not recited in the claims...." *See* Advisory Action at p. 3.

The reasons asserted by the Examiner for discounting the Marino Declaration are not proper. With respect to the first part of the Examiner's attack, the M.P.E.P. indicates that the interest of an expert in the outcome of the case is properly considered in assessing the probative value of an expert *opinion*. *See* M.P.E.P. § 726.01(c) (emphasis added); *see also Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986). Yet the Marino Declaration offers *facts*, not opinions. Specifically, the Marino Declaration states facts as to the commonly accepted definition of PTFE as it is known to those skilled in the polymer art and facts as to the properties of PTFE with regard to melt point and melt processability. *See* Marino Decl. at ¶¶ 6, 9. Insofar as the Marino Declaration does not consist merely of "expert opinions," the interest of Dr. Marino is not of particular relevance. Indeed, accepted definitions of PTFE, its melt point and its melt

processability are matters which can be readily found and confirmed in the relevant scientific literature. The Examiner's discounting of the Marino Declaration on the first stated basis was, therefore, improper.

With respect to the second part of the Examiner's attack on the Marino Declaration, it is well settled " 'that objective evidence or non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.' " *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983) (quoting *In re Tiffin*, 448 F.2d 791, 171 USPQ 294 (CCPA 1971)). Here, the Marino Declaration describes PTFE as it is known to those skilled in the polymer art, and it is PTFE which is the particular polymer specified in the claims. As such, the evidence supplied by Dr. Marino is commensurate in scope with the claims which the evidence is offered to support. By failing to set forth adequate reasons to rebut the Marino Declaration, the Examiner has failed to consider the totality of the record for the purpose of issuing a final rejection and thus erred as a matter of law. *See In re Alton*, 76 F.3d 1168, 1176 (Fed. Cir. 1996). Accordingly, the applicants submit respectfully that the Examiner improperly discounted the Marino Declaration.

The Greuel patent discloses a multi-layer article in which neither the inner nor the outer layer is PTFE. In fact, it is an essential teaching of the Greuel patent that the outer layer of the disclosed article be a melt processable material. *See* Greuel patent at col. 2, ll. 18-19. PTFE, which is required by all of the present claims for both the inner and the outer layers, is not melt processable, as is well known to those skilled in the art. *See* Marino Declaration at ¶ 11. Thus, the present claims stand in stark contrast to the teachings of the Greuel patent.

Furthermore, the Greuel patent does not contain any teaching whatsoever which would suggest the use of PTFE. As mentioned above, and as confirmed by the Marino Declaration, the

materials disclosed in the Greuel patent have vastly different properties and characteristics from PTFE. These vast differences preclude a proper finding that there is a suggestion or motivation in the Greuel patent to modify the other patents cited by the Examiner in a way that would arrive at the applicants' claimed invention. Furthermore, the applicants respectfully traverse the Examiner's contention that the Greuel patent discloses "PTFE formulations which are said to have 'wide mechanic utility'." As mentioned above, the Greuel patent does not even address PTFE formulations.

The applicants do not necessarily agree with all the other positions taken by the Examiner with respect to the cited patents. However, the substantial deficiencies of the Greuel patent as noted above are not in any way overcome in the remaining patents, and accordingly the rejection of claims 1-17 and 25-31 which is based thereon is improper and must be withdrawn.

CONCLUSION

In view of the above remarks and the Declaration of Dr. Charles Marino, the present application is believed to be in condition for allowance and a reversal of the Examiner's outstanding rejections is respectfully requested.

Respectfully submitted,

Dated: 5/28/02

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APPENDIX

Claims involved in the appeal:

1. A motion transmitting cable assembly comprising an abrasion resistant tubular article and a motion transmitting core moveably disposed within the tubular article, said tubular article comprising an inner wall component and an outer wall component, wherein said inner wall component comprises polytetrafluoroethylene, said outer wall component comprises polytetrafluoroethylene and an inorganic filler, and said outer wall component is disposed around and bonded to said inner wall component.

2. The assembly of claim 1 wherein the outer wall comprises from about 10 to about 95 wt.% polytetrafluoroethylene and from about 5 to about 90 wt.% inorganic filler.

3. The assembly of claim 1 wherein the outer wall comprises from about 60 to about 90 wt.% polytetrafluoroethylene and from about 10 to about 40 wt.% inorganic filler.

4. The assembly of claim 1 wherein the inner wall comprises from about 60 to about 98 wt.% polytetrafluoroethylene and from about 2 to about 40 wt.% organic filler.

5. The assembly of claim 4 wherein the inner wall comprises from about 75 to about 95 wt.% polytetrafluoroethylene and from about 2 to about 25 wt.% organic filler.

6. The assembly of claim 4 wherein the inner wall comprises from about 75 to about 95 wt.% polytetrafluoroethylene and from about 5 to about 25 wt.% organic filler.

7. The assembly of claim 1 wherein the inorganic filler is selected from the group consisting of carbon fibers, carbon powder, graphite, coke flour, amorphous glass, glass fibers, glass spheres, milled glass, bronze, iron powder, iron oxide, silicon dioxide, boric oxide, zirconium oxide, and molybdenum disulfide and combinations of two ore more of these.

8. The assembly of claim 4 wherein the organic filler is selected from the group consisting of aromatic polyesters, thermoplastic or thermosetting polyamide, polyimide and polyamide imide resins, polyetherimides, polyether ketones, polyether ether ketones, polysufones, polyether sulfones, polyphenylene sulfones, polyphenylene sulfides, polysulfide imides and combinations of two or more of these.

9. The assembly of claim 1 wherein the inner wall comprises from about 10 to about 25% of the total thickness of the tubular article.

10. The assembly of claim 1 wherein the inner wall comprises from about 10 to about 25% of the total thickness of the tubular article.

11. The assembly of claim 4 wherein said inner wall component and outer wall

component are bonded via a layer of polytetrafluoroethylene disposed therebetween.

12. The assembly of claim 1 wherein the inner wall comprises from about 75 to about 90 wt.% polytetrafluoroethylene and from about 5 to about 25 wt.% organic filler and wherein the outer wall comprises from about 60 to about 90 wt.% polytetrafluoroethylene and from about 10 to about 40 wt.% inorganic filler.

13. The assembly of claim 12 wherein the inorganic fiiler is selected from the group consisting of carbon fibers, carbon powder, graphite, coke flour, amorphous glass, glass fibers, glass spheres, milled glass, bronze, iron powder, iron oxide, silicon dioxide, boric oxide, zirconium oxide, and molybdenum disulfide and combinations of two or more of these.

14. The assembly of claim 12 wherein the organic filler is selected from the group consisting of aromatic polyesters, thermoplastic or thermosetting polyamide, polyimide, and polyamide imide resins, polyetherimides, polyether ketones, polyether ether ketones, polysufones, polyether sulfones, polyphenylene sulfones, polyphenylene sulfides, polysulfide imides and combinations of two or more of these.

15. The assembly of claim 12 wherein the inner wall comprises from about 5 to about 50% of the total thickness of the tubular article.

16. The assembly of claim 12 wherein the inner wall comprises from about 10 to about 25% of the total thickness of the tubular article.

17. The assembly of claim 12 further comprising a layer of polytetrafluoroethylene disposed between the inner wall and the outer wall of the tubular article.

18. Cancelled.

19. Cancelled.

20. Cancelled.

21. Cancelled.

22. Cancelled.

23. Cancelled.

24. Cancelled.

25. The motion transmitting cable of claim 1 wherein the inner wall of said tubular

article further comprises an organic filler.

26. The motion transmitting cable assembly of claim 25 wherein said organic filler is present in amounts of from about 2 to about 40% by weight of the inner wall of said tubular article.

27. The motion transmitting cable assembly of claim 1 wherein said core comprises a stranded stainless steel wire.

28. The motion transmitting cable assembly of claim 1 wherein said tubular article has a frictional efficiency of at least 90% after completion of 500,000 test cycles as measured in accordance with General Motors Standard CMP-TF004.

29. The assembly of claim 1 wherein said inner wall component and said outer wall component are co-extruded.

30. The assembly of claim 11 wherein said inner wall component, said outer wall component, and said layer of polytetrafluoroethylene are co-extruded.

31. The assembly of claim 1 wherein said inner wall component is substantially free of inorganic filler.